Type 3321 Valve
DIN and ANSI versions

Edition July 2016
Note on these mounting and operating instructions

These mounting and operating instructions assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices.

➔ For the safe and proper use of these instructions, read them carefully and keep them for later reference.

➔ If you have any questions about these instructions, contact SAMSON’s After-sales Service Department (aftersalesservice@samson.de).

The mounting and operating instructions for the devices are included in the scope of delivery. The latest documentation is available on our website at www.samson.de > Service & Support > Downloads > Documentation.

Definition of signal words

⚠️ DANGER
Hazardous situations which, if not avoided, will result in death or serious injury

⚠️ WARNING
Hazardous situations which, if not avoided, could result in death or serious injury

⚠️ NOTICE
Property damage message or malfunction

ℹ️ Note
Additional information

☀️ Tip
Recommended action
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1 Safety instructions and measures

Intended use
The SAMSON Type 3321 Globe Valve in combination with an actuator (e.g. Type 3372 Electropneumatic Actuator, Type 3371 Pneumatic Actuator, Type 5824/5825 Electric Actuator, or Type 3374 Electric Actuator) is designed to regulate the flow rate, pressure or temperature of liquids, gases, or vapors. The valve with its actuator is designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the control valve is only used in applications that meet the specifications used for sizing the valve at the ordering stage. In case operators intend to use the control valve in other applications or conditions than specified, SAMSON must be contacted.

SAMSON does not assume any liability for damage resulting from the failure to use the valve for its intended purpose or for damage caused by external forces or any other external factors.

➔ Refer to the technical data and nameplate for limits and fields of application as well as possible uses.

Reasonably foreseeable misuse
The control valve is not suitable for the following applications:
- Use outside the limits defined during sizing and in the technical data
- Use outside the limits defined by the valve accessories mounted on the control valve

Furthermore, the following activities do not comply with the intended use:
- Use of non-original spare parts
- Performing servicing and repair work not described in these instructions

Qualifications of operating personnel
The control valve must be mounted, started up, serviced, and repaired by fully trained and qualified personnel only; the accepted industry codes and practices are to be observed. According to these mounting and operating instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible hazards due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.
Safety instructions and measures

Personal protective equipment
We recommend wearing the following protective equipment depending on the process medium:

- Protective clothing, gloves and eyewear in applications with hot, cold, and/or corrosive media
- Wear hearing protection when working near the valve.

Check with the plant operator for details on further protective equipment.

Revisions and other modifications
Revisions, conversions or other modifications to the product are not authorized by SAMSON. They are performed at the user's own risk and may lead to safety hazards, for example. Furthermore, the product may no longer meet the requirements for its intended use.

Safety devices
Upon supply air or control signal failure, the valve moves to its fail-safe position (see section 3.1). The fail-safe action of the actuator is the same as its direction of action and is specified on the nameplate of SAMSON actuators (see actuator documentation).

Warning against residual hazards
To avoid personal injury or property damage, plant operators and operating personnel must prevent hazards that could be caused in the control valve by the process medium, the operating pressure, the signal pressure or by moving parts by taking appropriate precautions. They must observe all hazard statements, warning and caution notes in these mounting and operating instructions, especially for installation, start-up, and servicing.

Responsibilities of the operator
The operator is responsible for proper operation and compliance with the safety regulations. Operators are obliged to provide these mounting and operating instructions as well as the referenced documents to the operating personnel and to instruct them in proper operation. Furthermore, operators must ensure that operating personnel or third persons are not exposed to any danger.

Responsibilities of operating personnel
Operating personnel must read and understand these mounting and operating instructions as well as the referenced documents and observe the hazard statements, warning and caution notes specified in them. Furthermore, the operating personnel must be familiar with the applicable health, safety and accident prevention regulations and comply with them.
Safety instructions and measures

Referenced standards and regulations

The control valves comply with the requirements of the European Pressure Equipment Directive 2014/68/EU. Valves with a CE marking have a declaration of conformity which includes information about the applied conformity assessment procedure. This declaration of conformity is included in the Appendix of these instructions (see section 10.2).

According to the ignition risk assessment performed in accordance with EN 13463-1:2009, section 5.2, the non-electrical control valves do not have their own potential ignition source even in the rare incident of an operating fault. As a result, they do not fall within the scope of Directive 2014/34/EU.

➔ For connection to the equipotential bonding system, observe the requirements specified in section 6.4 of EN 60079-14 (VDE 0165 Part 1).

Referenced documentation

The following documents apply in addition to these mounting and operating instructions:

- Mounting and operating instructions for:
  - EB 8313-X for Type 3372 Actuator
  - EB 8317 for Type 3371 Actuator
  - EB 5824-X for Type 5824/5825 Actuator
  - EB 8331-X for Type 3374 Actuator
- Mounting and operating instructions for mounted valve accessories (positioner, solenoid valve etc.)
- AB 0100 for tools, tightening torques, and lubricant

1.1 Notes on possible severe personal injury

⚠️ DANGER

Risk of bursting in pressure equipment.

Control valves and pipelines are pressure equipment. Improper opening can lead to valve components bursting.

➔ Before starting any work on the control valve, depressurize all plant sections concerned and the valve.

➔ Drain the process medium from all the plant sections concerned as well as the valve.

➔ Wear personal protective equipment.
Safety instructions and measures

⚠️ DANGER

Risk of electric shock.

➤ Do not remove any covers to perform adjustment work on live parts.
➤ Before performing any work on the device and before opening the device, disconnect the power supply and protect it against unintentional reconnection.
➤ Only use power interruption devices that are protected against unintentional reconnection of the power supply.

1.2 Notes on possible personal injury

⚠️ WARNING

Crush hazard arising from moving parts.
The control valve contains moving parts (actuator and plug stems), which can injure hands or fingers if inserted into the valve.
➤ Do not insert hands or finger into the yoke while the valve is in operation.
➤ While working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.

Risk of personal injury when the pneumatic actuator vents.
While the valve is operating, the Type 3371 Actuator may vent during closed-loop control or when the valve opens or closes.
➤ Install the control valve in such a way that the actuator does not vent at eye level.
➤ Use suitable silencers and vent plugs.
➤ Wear eye protection when working in close proximity to the control valve.

Risk of personal injury due to preloaded springs.
Valves in combination with pneumatic actuators with preloaded springs are under tension. These control valves with SAMSON pneumatic actuators can be identified by the long bolts protruding from the bottom of the actuator.
➤ Before starting any work on the actuator, relieve the compression from the preloaded springs (see associated actuator documentation).
**WARNING**

Risk of personal injury due to residual process medium in the valve.
While working on the valve, residual process medium can escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns.

- If possible, drain the process medium from all the plant sections concerned and the valve.
- Wear protective clothing, gloves, and eyewear.

Risk of burn injuries due to hot or cold components and pipelines.
Depending on the process medium, valve components, and pipelines may get very hot or cold and cause burn injuries.

- Allow components and pipelines to cool down or heat up.
- Wear protective clothing and gloves.

### 1.3 Notes on possible property damage

**NOTICE**

Risk of damage to the electric control valve due to the power supply exceeding the permissible tolerances.
The electric control valves are designed for use according to regulations for low-voltage installations.

- Observe the permissible tolerances of the power supply. See associated actuator documentation.

Risk of valve damage due to contamination (e.g. solid particles) in the pipeline.
The plant engineering company is responsible for cleaning the pipelines in the plant.

- Flush the pipelines before start-up.
- Observe the maximum permissible pressure for valve and plant.

Risk of valve damage due to unsuitable medium properties.
The valve is designed for a process medium with defined properties.

- Only use the process medium specified for sizing the valve.
Safety instructions and measures

**NOTICE**

Risk of leakage and valve damage due to excessively high or low tightening torques.

Observe the specified torques on tightening control valve components. Excessively tightened torques lead to parts wearing out quicker. Parts that are too loose may cause leakage.

→ Observe the specified tightening torques (► AB 0100).

Risk of valve damage due to the use of unsuitable tools.

Certain tools are required to work on the valve.

→ Only use tools approved by SAMSON (► AB 0100).

Risk of valve damage due to the use of unsuitable lubricants.

The lubricants to be used depend on the valve material. Unsuitable lubricants may corrode and damage the valve surface.

→ Only use lubricants approved by SAMSON (► AB 0100).
2 Markings on the control valve

2.1 Valve nameplate

![Label with item numbers]

**Fig. 1:** Inscription on the valve nameplate

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Data Matrix code</td>
</tr>
<tr>
<td>2</td>
<td>Type designation</td>
</tr>
<tr>
<td>4</td>
<td>Material</td>
</tr>
<tr>
<td>5</td>
<td>Year of manufacture</td>
</tr>
</tbody>
</table>
| 6    | Valve size:  
DIN: DN · ANSI: NPS |
| 7    | Pressure rating:  
DIN: PN · ANSI: CL |
| 8    | Serial number | Order no./item |
| 10   | Flow coefficient:  
DIN: $K_{vs}$ · ANSI: $C_v$ |
| 11   | Characteristic:  
%: equal percentage · LIN: linear  
**mod-lin**: modified linear  
**NO/NC**: on/off service |
| 12   | Seat-plug seal:  
**ME**: metal · **HA**: carbide metal  
**ST**: metal base material with Stellite® facing  
**KE**: ceramic · **PK**: soft PEEK seal |
| 13   | Seat code (trim material): on request |
| 14   | Pressure balancing:  
DIN: D · ANSI: B  
Valve version:  
**M**: mixing valve · **V**: diverting valve |
| 15   | Noise reduction:  
1: flow divider (ST) 1 · 2: ST 2 · 3: ST 3  
1/PSA: standard ST 1 and integrated into the seat (PSA valve)  
AC-1/AC-2/AC-3/AC-5: anti-cavitation trim (version 1 to 5)  
LK: perforated plug · LK1/LK2/LK3: perforated plug with flow divider ST 1 to 3  
**MHC1**: multi-hole cage · **CC1**: combi cage  
**ZT1**: zero travel trim |
| 16   | Country of origin |
| 17   | PSA version: **PSA** |
| 18   | Cage/seat design:  
**CC**: Clamped cage, clamped seat  
**SF**: Suspended cage, flanged seat  
**FF**: Flanged cage, flanged seat |
| 19   | CE marking |
| 20   | ID of the notified body  
**PED**: Pressure Equipment Directive  
**G1/G2**: gases and steam  
**L1**: liquids  
Fluid group 1 = hazardous  
Fluid group 2 = others  
**I/II/III**: Category 1 to 3 |
The valve nameplate (80) in valve sizes DN 15 to 15 or NPS ½ to 2 is affixed to the valve on the body flange (Fig. 2). The nameplate is affixed to the top of the bonnet in valve sizes DN 65 or NPS 2½ and larger (Fig. 3).

![Fig. 2: Nameplate on the body](image1)
![Fig. 3: Nameplate on the bonnet](image2)

### 2.2 Actuator nameplate

See associated actuator documentation.

### 2.3 Material number

The seat and plug of the valves have an article number written on them. Specifying this article number, you can contact us to find out which material is used. Additionally, a seat code is used to identify the trim material. This seat code is specified on the nameplate (17). For more details on the nameplate, see section 2.1.
Design and principle of operation

3 Design and principle of operation

The single-seated Type 3321 Globe Valve is preferably to be combined with the following SAMSON actuators:
- Type 3372 Electropneumatic Actuator
- Type 3371 Pneumatic Actuator
- Type 3374 Electric Actuator
- Type 5824/5825 Electric Actuator

The seat (4) and plug with plug stem (5) are assembled in the body (1). The plug stem is connected to the actuator stem (A3/A7) by a stem connector (A30/A31) and sealed by the spring-loaded packing (15).

The process medium flows through the valve in the direction indicated by the arrow in the flow-to-open direction. The plug position determines the cross-sectional area between the seat and plug.

The position of the plug is changed by the control signal acting on the actuator.

Fig. 4: Type 3321 Valve, DN 15 to 50/NPS ½ to 2; mounting using a cross-beam and central nut (Form B)
Fig. 5: Type 3321 Valve, DN 65 to 100/NPS 2½ to 4; mounting using rods (Form C)

Legend for Fig. 4 and Fig. 5

1 Body
2 Valve bonnet
4 Seat
5 Plug (with plug stem)
8 Threaded bushing (packing nut)
13 Stud bolt
14 Body nut
15 Packing
17 Body gasket
96 Flange bonnet
97 Flange
98 Central nut
A3/A7 Actuator stem
A11/A33 Rod
A17 Bracket
A25 Nut
A30/A31 Stem connector
A54 Nut
3.1 Fail-safe positions
Upon failure of the air supply or power supply, the valve moves to its fail-safe position.

- **Actuator stem extends (fail-close):** upon power supply or air supply failure, the actuator stem extends causing the valve to close.

- **Actuator stem retracts (fail-open):** upon power supply or air supply failure, the actuator stem retracts causing the valve to open.

**Note**
The direction of action of the electric and electropneumatic actuators is determined by the actuator version.
The direction of action of the Type 3371 Pneumatic Actuator can be reversed, if required. See the mounting and operating instructions ➤ EB 8317.

3.2 Mounting types
There are two different types of attachment to mount the pneumatic or electropneumatic actuator onto the valve depending on the version (valve size etc.): mounting using crossbeam or mounting using rods (see Table 1).

1. **Mounting using crossbeam and central nut**
   When the actuator is mounted to the valve using a crossbeam (Form B, Fig. 6), the actuator is fastened to the valve bonnet using a central nut.

2. **Mounting using rods**
   When the actuator is mounted on rods (Form C, Fig. 7) the actuator is connected to the valve bonnet using rods. In this case, a crossbeam is not required for mounting the actuator. A plate keeps the correct distance between rods.

When an electric actuator is mounted onto the valve, it is mounted with a form-fit connection using a stem connector and yoke.

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Actuator area</th>
<th>Type of attachment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 3371</td>
<td>120 cm²</td>
<td>350 cm²</td>
</tr>
<tr>
<td>For valve size</td>
<td>DN 15 to 50/NPS ½ to 2</td>
<td>Form B</td>
</tr>
<tr>
<td></td>
<td>DN 65 to 100/NPS 2½ to 4</td>
<td>Form C</td>
</tr>
<tr>
<td>Type 3372</td>
<td>120 cm²</td>
<td>350 cm²</td>
</tr>
<tr>
<td>For valve size</td>
<td>DN 15 to 50/NPS ½ to 2</td>
<td>Form B</td>
</tr>
<tr>
<td></td>
<td>DN 65 to 100/NPS 2½ to 4</td>
<td>—</td>
</tr>
<tr>
<td>Type 3374</td>
<td>Form-fit attachment using stem connector and yoke</td>
<td></td>
</tr>
<tr>
<td>Type 5824</td>
<td>Form-fit attachment using stem connector and yoke</td>
<td></td>
</tr>
</tbody>
</table>
Fig. 6: Mounting using crossbeam and central nut (Form B attachment)

Type 3321-PP  Type 3321-IP
Type 3321-E1  Type 3321-E3

Legend for Fig. 6 and Fig. 7
98       Central nut
A17      Bracket
A33      Rod
A60      Plate

Fig. 7: Mounting using rods (Form C attachment)

Type 3321-PP  Type 3321-IP
Design and principle of operation

3.3 Technical data

The nameplates on the valve and actuator provide information on the control valve version. See section 2.1 and the actuator documentation.

More information is available in Data Sheet T 8111.

Compliance

The Type 3321 Valve bears both the CE and EAC marks of conformity.

Temperature range

Depending on the version, the control valve is designed for a temperature range from –10 to +220 °C (14 to 430 °F). The use of an insulating section extends the temperature range to +300 °C (+572 °F).

Leakage class

Depending on the version, the following leakage class applies:

<table>
<thead>
<tr>
<th>Seal (16 on nameplate)</th>
<th>ME, ST</th>
<th>ME, ST</th>
<th>PT, PK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leakage class (according to IEC 60534-4 or ANSI/FCI 70-2)</td>
<td>Min. IV</td>
<td>Min. IV</td>
<td>VI</td>
</tr>
</tbody>
</table>

Noise emission

SAMSON is unable to make general statements about noise emission as it depends on the valve version, plant facilities and process medium.

WARNING

Risk of hearing loss or deafness due to loud noise. Wear hearing protection when working near the valve.
Dimensions and weights

The dimensions and weights for the DIN versions are listed in Table 2.

The dimensions and weights for the ANSI versions are listed in Table 3.

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refer to the following data sheets for more dimensions and weights:</td>
</tr>
<tr>
<td>► T 8313 for Type 3372 Electropneumatic Actuator</td>
</tr>
<tr>
<td>► T 8317 for Type 3371 Pneumatic Actuator</td>
</tr>
<tr>
<td>► T 5824 for Type 5824/5825 Electric Actuator</td>
</tr>
<tr>
<td>► T 8331 for Type 3374 Electric Actuator</td>
</tr>
</tbody>
</table>
## Design and principle of operation

**Table 2: Dimensions and weights for Type 3321 Valve · DIN version**

<table>
<thead>
<tr>
<th>Valve</th>
<th>DN</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>65</th>
<th>80</th>
<th>100</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>mm</td>
<td>130</td>
<td>150</td>
<td>160</td>
<td>180</td>
<td>200</td>
<td>230</td>
<td>290</td>
<td>310</td>
<td>350</td>
</tr>
<tr>
<td>Dimension A</td>
<td>mm</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1</td>
<td>mm</td>
<td>110</td>
<td>110</td>
<td>110</td>
<td>115</td>
<td>115</td>
<td>115</td>
<td>178</td>
<td>178</td>
<td>201</td>
</tr>
<tr>
<td>H2</td>
<td>mm</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>98</td>
<td>98</td>
<td>118</td>
</tr>
<tr>
<td>H4 (with insulating section)</td>
<td>mm</td>
<td>261</td>
<td>261</td>
<td>261</td>
<td>265</td>
<td>265</td>
<td>265</td>
<td>325</td>
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</tr>
<tr>
<td>Weight</td>
<td>kg</td>
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<td>7</td>
<td>11</td>
<td>12</td>
<td>15</td>
<td>24</td>
<td>30</td>
<td>42</td>
</tr>
<tr>
<td>Weight (with insulating section)</td>
<td>kg</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>17</td>
<td>18</td>
<td>21</td>
<td>32</td>
<td>38</td>
<td>60</td>
</tr>
</tbody>
</table>

**Table 3: Dimensions and weights for Type 3321 Valve · ANSI version**

<table>
<thead>
<tr>
<th>Valve size</th>
<th>NPS</th>
<th>½</th>
<th>¾</th>
<th>1</th>
<th>1½</th>
<th>2</th>
<th>2½</th>
<th>3</th>
<th>4</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>DN</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>40</td>
<td>50</td>
<td>65</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>L Class 150</td>
<td>in</td>
<td>7.25</td>
<td>7.25</td>
<td>7.25</td>
<td>8.75</td>
<td>10.00</td>
<td>10.87</td>
<td>11.75</td>
<td>13.87</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>184</td>
<td>184</td>
<td>184</td>
<td>222</td>
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<td>276</td>
<td>298</td>
<td>352</td>
</tr>
<tr>
<td>L Class 300</td>
<td>in</td>
<td>7.50</td>
<td>7.62</td>
<td>7.75</td>
<td>9.25</td>
<td>10.50</td>
<td>11.50</td>
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<tr>
<td></td>
<td>mm</td>
<td>191</td>
<td>194</td>
<td>197</td>
<td>235</td>
<td>267</td>
<td>292</td>
<td>318</td>
<td>368</td>
</tr>
<tr>
<td>Dimension A</td>
<td>in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.96</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>H1</td>
<td>in</td>
<td>4.3</td>
<td>4.3</td>
<td>4.3</td>
<td>4.5</td>
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<td>7.0</td>
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<td>115</td>
<td>115</td>
<td>178</td>
<td>178</td>
<td>201</td>
</tr>
<tr>
<td>H2</td>
<td>in</td>
<td>1.6</td>
<td>1.6</td>
<td>1.6</td>
<td>2.8</td>
<td>2.8</td>
<td>3.9</td>
<td>3.9</td>
<td>4.4</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>72</td>
<td>72</td>
<td>98</td>
<td>98</td>
<td>113</td>
</tr>
<tr>
<td>H4 (with insulating section)</td>
<td>in</td>
<td>10.3</td>
<td>10.3</td>
<td>10.3</td>
<td>10.4</td>
<td>10.4</td>
<td>12.8</td>
<td>12.8</td>
<td>12.8</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>261</td>
<td>261</td>
<td>261</td>
<td>265</td>
<td>265</td>
<td>325</td>
<td>325</td>
<td>325</td>
</tr>
<tr>
<td>Weight</td>
<td>lbs</td>
<td>14</td>
<td>16</td>
<td>18</td>
<td>27</td>
<td>36</td>
<td>58</td>
<td>71</td>
<td>97</td>
</tr>
<tr>
<td></td>
<td>kg</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>12</td>
<td>16</td>
<td>26</td>
<td>32</td>
<td>44</td>
</tr>
<tr>
<td>Weight (with insulating section)</td>
<td>lbs</td>
<td>19.8</td>
<td>22.1</td>
<td>24.3</td>
<td>39.7</td>
<td>48.5</td>
<td>75</td>
<td>88.2</td>
<td>136.7</td>
</tr>
<tr>
<td></td>
<td>kg</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>18</td>
<td>22</td>
<td>34</td>
<td>40</td>
<td>62</td>
</tr>
</tbody>
</table>
Design and principle of operation

Dimensional drawings

DN 15 to 50/NPS ½ to 2

DN 65 to 100/ NPS 2½ to 4

Version with insulating section
4 Measures

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Compare the shipment received against the delivery note.
2. Check the shipment for transportation damage. Report any damage to SAMSON and the forwarding agent (refer to delivery note).

4.1 Unpacking

**Note**
Do not remove the packaging until immediately before installing the valve into the pipeline.

Proceed as follows to lift and install the valve:
1. Remove the packaging from the valve.
2. Dispose of the packaging in accordance with the valid regulations.

**NOTICE**
Risk of valve damage due to foreign particles entering the valve.
The protective caps fitted on the valve's inlet and outlet prevent foreign particles from entering the valve and damaging it.
Do not remove the protective caps until immediately before installing the valve into the pipeline.

4.2 Transporting and lifting

**DANGER**
Hazard due to suspended loads falling.
Stay clear of suspended or moving loads.

**WARNING**
Risk of lifting equipment tipping and risk of damage to lifting accessories due to exceeding the rated lifting capacity.
- Only use approved lifting equipment and accessories whose minimum lifting capacity is higher than the weight of the valve (including actuator, if applicable).
- Refer to section 3.3 or Data Sheet T 8111 for weights.

**WARNING**
Risk of personal injury due to control valve tipping.
- Observe the valve's center of gravity.
- Secure the valve against tipping over or turning.
Measures

⚠️ NOTICE
Risk of valve damage due to incorrectly attached slings.
- When lifting the control valve, make sure that the slings attached to the valve body bear the entire load.
- Do not attach load-bearing slings to the actuator, handwheel or any other parts.
- Observe lifting instructions (see section 4.2.2).

⚠️ Tip
SAMSON's After-sales Service department can provide more detailed transport and lifting instructions on request.

4.2.1 Transporting

The control valve can be transported using lifting equipment (e.g. crane or forklift).

➢ Leave the control valve in its transport container or on the pallet to transport it.
➢ Observe the transport instructions.

Transport instructions
- Protect the control valve against external influences (e.g. impact).
- Do not damage the corrosion protection (paint, surface coatings). Remove any damage immediately.
- Protect the control valve against moisture and dirt.
- The permissible transportation temperature of standard control valves is −20 to +65 °C (−4 to +149 °F).

⚠️ Note
Contact SAMSON's After-sales Service department for the transportation temperatures of other valve versions.

4.2.2 Lifting

To install a large valve into the pipeline, use lifting equipment (e.g. crane or forklift) to lift it.

Lifting instructions
- Secure slings against slipping.
- Make sure the slings can be removed from the valve once it has been installed into the pipeline.
- Prevent the control valve from tilting or tipping.
- Do not leave loads suspended when interrupting work for longer periods of time.
- Make sure that the axis of the pipeline is always horizontal during lifting and the axis of the plug stem is always vertical.
Lifting the control valve

1. Attach one sling to each flange of the body and to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 8).

2. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.

3. Move the control valve at an even pace to the site of installation.

4. Install the valve into the pipeline (see section 5.2.3).

5. After installation in the pipeline, check whether the flanges are bolted tight and the valve in the pipeline holds.

6. Remove slings.

Tip

We recommend using a hook with safety latch (see Fig. 8). The safety latch prevents the slings from slipping during lifting and transporting.

Fig. 8: Lifting points on the control valve
4.3 Storage

**NOTICE**

Risk of valve damage due to improper storage.
- Observe storage instructions.
- Avoid long storage times.
- Contact SAMSON in case of different storage conditions or longer storage periods.

**Note**

We recommend regularly checking the control valve and the prevailing storage conditions during long storage times.

**Storage instructions**

- Protect the control valve against external influences (e.g. impact).
- Do not damage the corrosion protection (paint, surface coatings). Remove any damage immediately.
- Protect the control valve against moisture and dirt. Store it at a relative humidity of less than 75%. In damp spaces, prevent condensation. If necessary, use a drying agent or heating.
- Make sure that the ambient air is free of acids or other corrosive media.
- The permissible storage temperature of standard control valves is −20 to +65 °C (−4 to +149 °F).

**Note**

Contact SAMSON’s After-sales Service department for the storage temperatures of other valve versions.

- Do not place any objects on the control valve.

**Special storage instructions for elastomers**

Elastomer, e.g. actuator diaphragm

- To keep elastomers in shape and to prevent cracking, do not bend them or hang them up.
- We recommend a storage temperature of 15 °C (59 °F) for elastomers.
- Store elastomers away from lubricants, chemicals, solutions, and fuels.

**Tip**

SAMSON’s After-sales Service department can provide more detailed storage instructions on request.
4.4 Preparation for installation

Proceed as follows:

- Flush the pipelines.

---

**Note**

The plant engineering company is responsible for cleaning the pipelines in the plant.

---

- Check the valve to make sure it is clean.
- Check the valve for damage.
- Check to make sure that the type designation, valve size, material, pressure rating and temperature range of the valve match the plant conditions (size and pressure rating of the pipeline, medium temperature etc.).
- For steam applications, make sure that the pipelines are dry. Moisture will damage the inside of the valve.
- Check any mounted pressure gauges to make sure they function.
- When the valve and actuator are already assembled, check the tightening torques of the bolted joints (▶ AB 0100). Components may loosen during transport.
5 Mounting and start-up

SAMSON valves are delivered ready for use. In special cases, the valve and actuator are delivered separately and must be assembled on site. The procedure to mount and start up the valve are described in the following.

**NOTICE**
Risk of valve damage due to excessively high or low tightening torques.
Observe the specified torques on tightening control valve components. Excessively tightened torques lead to parts wearing out quicker. Parts that are too loose may cause leakage.
Observe the specified tightening torques (▶ AB 0100).

**NOTICE**
Risk of valve damage due to the use of unsuitable tools.
Only use tools approved by SAMSON (▶ AB 0100).

5.1 Mounting the actuator onto the valve

Proceed as described in the actuator documentation if the valve and actuator have not been assembled by SAMSON:

- Remove the mounted actuator before mounting the other actuator (see associated actuator documentation).
- Preloading the actuator springs increases the thrust of a pneumatic actuator and reduces the travel range of the actuator (see associated actuator documentation).

5.2 Installing the valve into the pipeline

5.2.1 Checking the installation conditions

Pipeline routing
The inlet and outlet lengths vary depending on the process medium. To ensure the control valve functions properly, follow the installation instructions given below:

- Observe the inlet and outlet lengths (see Table 4). Contact SAMSON if the valve conditions or states of the medium process deviate.
- Install the valve free of stress and with the least amount of vibrations as possible. If necessary, attach supports to the valve.
- Install the valve allowing sufficient space to remove the actuator and valve or to perform service and repair work on them.
### Table 4: Inlet and outlet lengths

<table>
<thead>
<tr>
<th>State of process medium</th>
<th>Valve conditions</th>
<th>Inlet length a</th>
<th>Outlet length b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas</td>
<td>Ma ≤ 0.3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>0.3 ≤ Ma ≤ 0.7</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Vapor</td>
<td>Ma ≤ 0.3 ¹¹</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>0.3 ≤ Ma ≤ 0.7 ¹¹</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Saturated steam (percentage of condensate &gt; 5 %)</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Liquid</td>
<td>Free of cavitation/w &lt; 10 m/s</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Cavitation producing noise/w ≤ 3 m/s</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Cavitation producing noise/3 &lt; w &lt; 5 m/s</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Critical cavitation/w ≤ 3 m/s</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Critical cavitation/3 &lt; w &lt; 5 m/s</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Flashing</td>
<td>–</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Multi-phase</td>
<td>–</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

¹¹ No saturated steam
Mounting and start-up

Mounting position
Generally, we recommend installing the valve with the actuator upright and on top of the valve.

➔ Contact SAMSON if the mounting position is not as specified here.

Support or suspension
Depending on the valve version and mounting position, the control valve and pipeline must be supported or suspended. The plant engineering company is responsible in this case.

⚠️ NOTICE
Premature wear and leakage due to insufficient support or suspension.
In the following versions, the control valve must be supported or suspended:
− Valves that are not installed with the actuator upright on top of the valve.
Attach a suitable support or suspension to the valve.

Vent plug
Vent plugs are screwed into the exhaust air ports of pneumatic and electropneumatic devices. They ensure that any exhaust air that forms can be vented to the atmosphere (to avoid excess pressure in the device). Furthermore, the vent plugs allow air intake to prevent a vacuum from forming in the device.

➔ Locate the vent plug on the opposite side to the workplace of operating personnel.

➔ On mounting valve accessories, make sure that they can be operated from the workplace of the operating personnel.

ⓘ Note
The workplace of operating personnel is the location from which the valve, actuator and any mounted valve accessories can be accessed to operate them.

5.2.2 Additional fittings

Strainers
We recommend installing a SAMSON strainer upstream of the valve. It prevents solid particles in the process medium from damaging the valve.

Bypass and shut-off valves
We recommend installing a shut-off valve both upstream of the strainer and downstream of the valve and setting up a bypass line. The bypass line ensures that the plant does not need to be shut down for service and repair work on the valve.

Insulation
Only insulate control valves with insulating section up to the bonnet flange of the valve body for medium temperatures below 0 °C (32 °F) and above 220 °C (428 °F).

Safety guard
To reduce the crush hazard arising from moving parts (actuator and plug stem), a safety guard can be installed.
Noise emission
Trims with flow dividers can be used to reduce noise emission (see ➤ T 8081).

5.2.3 Installing the control valve
1. Close the shut-off valve in the pipeline while the valve is being installed.
2. Remove the protective caps from the valve ports before installing the valve.
3. Lift the valve using suitable lifting equipment to the site of installation (see section 4.2.2). Observe the flow direction through the valve. The arrow on the valve indicates the direction of flow.
4. Make sure that the correct flange gaskets are used.
5. Bolt the pipe to the valve free of stress.
6. Depending on the field of application, allow the valve to cool down or heat up to reach ambient temperature before start up.
7. Slowly open the shut-off valve in the pipeline after the valve has been installed.
8. Check the valve to ensure it functions properly.

5.3 Quick check
SAMSON valves are delivered ready for use. To test the valve’s ability to function, the following quick checks can be performed:

Tight shut-off
1. Close the valve.
2. Slowly open the shut-off valve in the pipeline.

NOTICE
Risk of valve damage due to a sudden pressure increase and resulting high flow velocities. Slowly open the shut-off valve in the pipeline during start-up.

3. Check the valve for leakage (visual inspection).

Travel motion
The movement of the actuator stem must be linear and smooth.
→ Open and close the valve, observing the movement of the actuator stem.
→ Apply the maximum and minimum control signals to check the end positions of the valve.
→ Check the travel reading at the travel indicator scale.

Fail-safe position
→ Shut off the signal pressure line.
→ Check whether the valve moves to the fail-safe position.
Mounting and start-up

Pressure test
During the pressure test, make sure the following conditions are met:

- Retract the plug stem to open the valve.
- Observe the maximum permissible pressure for valve and plant.

**Note**
The plant engineering company is responsible for performing the pressure test. SAMSON’s After-sales Service department can support you to plan and perform a pressure test for your plant.
Mounting and start-up
6 Operation

Immediately after completing mounting and start-up (see section 5), the valve is ready for use.

**WARNING**

Crush hazard arising from moving parts (actuator and plug stem).
Do not insert hands or finger into the yoke while the valve is in operation.

**WARNING**

Risk of personal injury when the Type 3371 Pneumatic Actuator vents.
Wear eye protection when working in close proximity to the control valve.

**WARNING**

Risk of burn injuries due to hot or cold components and pipelines.
Depending on the process medium, valve components, and pipelines may get very hot or cold and cause burn injuries.
Wear protective clothing and gloves.

**NOTICE**

Operation disturbed by a blocked actuator or plug stem.
Do not impede the movement of the actuator or plug stem by inserting objects into their path.
7 Servicing

The control valve is subject to normal wear, especially at the seat, plug, and packing. Depending on the operating conditions, check the valve at regular intervals to prevent possible failure before it can occur.

Tip
SAMSON’s After-sales Service department can support you to draw up a servicing plan for your plant.

We recommend removing the valve from the pipeline or service or repair work (see section 9.2).

DANGER
Risk of bursting in pressure equipment. Control valves and pipelines are pressure equipment. Improper opening can lead to bursting of the valve.
– Before starting any work on the control valve, depressurize all plant sections concerned and the valve.
– Drain the process medium from all the plant sections concerned as well as the valve.
– Wear personal protective equipment.

WARNING
Risk of personal injury due to residual process medium in the valve.
While working on the valve, residual process medium can escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns.
Wear protective clothing, gloves, and eyewear.

WARNING
Risk of burn injuries due to hot or cold components and pipeline.
Valve components and the pipeline may become very hot or cold. Risk of burn injuries.
– Allow components and pipelines to cool down or heat up.
– Wear protective clothing and gloves.

NOTICE
Risk of valve damage due to incorrect servicing or repair.
Service and repair work must only be performed by trained staff.
Risk of valve damage due to excessively high or low tightening torques.
Observe the specified torques on tightening control valve components. Excessively tightened torques lead to parts wearing out quicker. Parts that are too loose may cause leakage.
Observe the specified tightening torques (► AB 0100).

Risk of valve damage due to the use of unsuitable tools.
Only use tools approved by SAMSON (► AB 0100).

Risk of valve damage due to the use of unsuitable lubricants.
Only use lubricants approved by SAMSON (► AB 0100).

The control valve was checked by SAMSON before it left the factory.
– Certain test results (seat leakage and leak test) certified by SAMSON lose their validity when the valve body or actuator housing is opened.
– The product warranty becomes void if servicing or repair work not described in these instructions is performed without prior agreement by SAMSON’s After-sales Service department.
– Only use original spare parts by SAMSON, which comply with the original specifications.

The procedure to remove or mount the actuator for service work depends on the type of attachment (Form B or Form C, see section 3.2).
7.1 Replacing the gasket

7.1.1 For mounting using crossbeam and central nut (Form B)

1. Undo the body nuts (14) gradually in a criss-cross pattern.
2. Lift the flange (97), flange bonnet (96), and plug with plug stem (5) off the body (1).
3. Remove the flat gasket (17). Carefully clean the sealing faces in the valve body (1) and on the flange bonnet (96).
4. Insert a new gasket (17) into the body.
5. Place the flange bonnet (96) and the flange (97) over the studs (13) onto the body.
6. Press the plug (5) firmly into the seat (4), while fastening down the flange bonnet (96) with the body nuts (14). Tighten the nuts gradually in a criss-cross pattern. Observe tightening torques.
7.1.2 For mounting on rods  
(Form C)

1. Undo the body nuts (14) gradually in a criss-cross pattern.
2. Lift the valve bonnet (2) and plug with plug stem (5) off the body (1).
3. Remove the flat gasket (17). Carefully clean the sealing faces in the valve body (1) and on the flange bonnet (2).
4. Insert a new gasket (17) into the body.
5. Place the valve bonnet (2) and plug with plug stem (5) onto the body.
6. Press the plug (5) firmly into the seat (4), while fastening down the valve bonnet (2) with the body nuts (14). Tighten the nuts gradually in a criss-cross pattern. Observe tightening torques.

Fig. 10: Type 3321 Valve, DN 65 to 100/NPS 2½ to 4; Form C attachment (mounting using rods)
7.2 Replacing the packing

The Type 3321 Valve is either fitted with a standard or Form D packing. The packings have an identical design, but contain different materials.

7.2.1 For mounting using crossbeam and central nut (Form B)

1. Remove the actuator from the valve. See associated actuator documentation.

   To remove the actuator from the valve, the central nut (98) must be loosened.

2. Undo the body nuts (14) gradually in a criss-cross pattern.

3. Lift the flange (97), flange bonnet (96), and plug with plug stem (5) off the body (1).

4. Unscrew the threaded bushing (8).

5. Pull the plug with plug stem (5) out of the flange bonnet (96).

6. Pull all the packing parts out of the packing chamber using a suitable tool.

7. Renew damaged parts. Clean the packing chamber thoroughly.

8. Apply a suitable lubricant to all the packing parts and to the plug stem (5).

9. Slide the plug with plug stem (5) into the valve body (1).

10. Place the flange bonnet (96) and the flange (97) over the plug stem and studs (13) onto the body.

11. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Make sure to observe the proper sequence (see Fig. 11).

12. Press the plug (5) firmly into the seat (4), while fastening down the flange bonnet (96) with the body nuts (14). Tighten the nuts gradually in a criss-cross pattern. Observe tightening torques.

13. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.


   To fasten the actuator onto the valve, the central nut (98) must be tightened. Observe tightening torques.
7.2.2 For mounting on rods (Form C)

1. Remove the actuator from the valve. See associated actuator documentation.

2. Undo the body nuts (14) gradually in a criss-cross pattern.

3. Lift the valve bonnet (2) and plug with plug stem (5) off the body (1).

4. Unscrew the threaded bushing (8).

5. Pull the plug with plug stem (5) out of the valve bonnet (2).

6. Pull all the packing parts out of the packing chamber using a suitable tool.

7. Renew the damaged parts and carefully clean the packing chamber.

8. Apply a suitable lubricant to all the packing parts and to the plug stem (5).

9. Slide the plug with plug stem (5) into the valve body (1).

10. Carefully place the valve bonnet (2) over the plug stem onto the body.

11. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Make sure to observe the proper sequence (see Fig. 11).

12. Press the plug (5) firmly into the seat (4), while fastening down the valve bonnet (2) with the body nuts (14). Tighten the nuts gradually in a criss-cross pattern. Observe tightening torques.

13. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.

7.3 Replacing the seat and plug

Risk of damage to the facing of the seat and plug due to incorrect service or repair. Always replace both the seat and plug.

Tip
When replacing the seat and plug, we also recommend replacing the flat gasket and packing. See sections 7.1 and 7.2.

7.3.1 For mounting using crossbeam and central nut (Form B)

1. Remove the actuator from the valve. See associated actuator documentation.

2. Undo the body nuts (14) gradually in a criss-cross pattern.

3. Lift the flange (97), flange bonnet (96), and plug with plug stem (5) off the body (1).

4. Unscrew the threaded bushing (8).

5. Pull the plug with plug stem (5) out of the flange bonnet (96).

6. Pull all the packing parts out of the packing chamber using a suitable tool.

7. Unscrew the seat (4) using a suitable tool.

8. Apply a suitable lubricant to the thread and the sealing cone of the new seat.


10. Apply a suitable lubricant to all the packing parts and to the new plug stem (5). We recommend replacing the packing as well. See section 7.2.1.

11. Slide the new plug with plug stem (5) into the valve body (1).

12. Place the flange bonnet (96) and the flange (97) over the plug stem and studs (13) onto the body.

13. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Make sure to observe the proper sequence (see Fig. 11).

14. Press the plug (5) firmly into the seat (4), while fastening down the flange bonnet (96) with the body nuts (14). Tighten the nuts gradually in a criss-cross pattern. Observe tightening torques.

15. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.


Note
To fasten the actuator onto the valve, the central nut (98) must be tightened. Observe tightening torques.
7.3.2 For mounting on rods (Form C)

1. Remove the actuator from the valve. See associated actuator documentation.
2. Undo the body nuts (14) gradually in a criss-cross pattern.
3. Lift the valve bonnet (2) and plug with plug stem (5) off the body (1).
4. Replace gasket as described in section 7.1.2.
5. Unscrew the threaded bushing (8).
6. Pull the plug with plug stem (5) out of the valve bonnet (2).
7. Pull all the packing parts out of the packing chamber using a suitable tool.
8. Unscrew the seat (4) using a suitable tool.
9. Apply a suitable lubricant to the thread and the sealing cone of the new seat.
10. Screw in the seat (4). Observe tightening torques.
11. Apply a suitable lubricant to all the packing parts and to the new plug stem (5). We recommend replacing the packing as well. See section 7.2.2.
12. Slide the new plug with plug stem (5) into the valve body (1).
13. Carefully place the valve bonnet (2) over the plug stem onto the body.
14. Carefully slide the packing parts over the plug stem extension into the packing chamber using a suitable tool. Make sure to observe the proper sequence (see Fig. 11).
15. Press the plug (5) firmly into the seat (4), while fastening down the valve bonnet (2) with the body nuts (14). Tighten the nuts gradually in a criss-cross pattern. Observe tightening torques.
16. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
17. Mount actuator. See associated actuator documentation.
7.4 Preparation for return shipment

Defective valves can be returned to SAMSON for repair.

Proceed as follows to return valves to SAMSON:

1. Put the control valve out of operation (see section 9).
2. Decontaminate the valve. Remove any residual process medium.
3. Fill in the Declaration on Contamination, which can be downloaded from our website at www.samson.de > Services > Check lists for after sales service > Declaration on Contamination.
4. Send the valve together with the filled-in form to your nearest SAMSON subsidiary. SAMSON subsidiaries are listed on our website at www.samson.de > Contact.

7.5 Ordering spare parts and operating supplies

Contact your nearest SAMSON subsidiary or the SAMSON After-sales Service department for information on spare parts, lubricants, and tools.

Spare parts

See section 10.3 for details on spare parts.

Lubricant

Details on suitable lubricants can be found in the document AB 0100.

Tools

Details on suitable tools can be found in the document AB 0100.
8 Malfunctions

Depending on the operating conditions, check the valve at certain intervals to prevent possible failure before it can occur. Operators are responsible for drawing up an inspection plan.

**Tip**

SAMSON’s After-sales Service department can support you to draw up an inspection plan for your plant.

8.1 Troubleshooting

<table>
<thead>
<tr>
<th>Malfunction</th>
<th>Possible reasons</th>
<th>Recommended action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuator or plug stem does not move on demand.</td>
<td>Actuator is blocked.</td>
<td>Check attachment. Unblock the actuator.</td>
</tr>
<tr>
<td></td>
<td>Signal pressure too low</td>
<td>Check the signal pressure. Check the signal pressure line for leakage.</td>
</tr>
<tr>
<td></td>
<td>No or incorrect power supply</td>
<td>Check the power supply and connections.</td>
</tr>
<tr>
<td>connected.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actuator or plug stem does not move through the whole range.</td>
<td>Signal pressure too low</td>
<td>Check the signal pressure. Check the signal pressure line for leakage.</td>
</tr>
<tr>
<td></td>
<td>No or incorrect power supply</td>
<td>Check the power supply and connections.</td>
</tr>
<tr>
<td>connected.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The valve leaks to the atmosphere (fugitive emissions).</td>
<td>The packing is defective.</td>
<td>Replace packing (see section 7.2) or contact SAMSON’s After-sales Service department.</td>
</tr>
<tr>
<td></td>
<td>Flange joint loose or gasket</td>
<td>Check the flange joint. Replace gasket at the flanged joint (see section 7.1 or contact SAMSON’s After-sales Service department).</td>
</tr>
<tr>
<td>worn out.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased flow through closed valve (seat leakage)</td>
<td>Dirt or other foreign particles</td>
<td>Shut off the section of the pipeline and flush the valve.</td>
</tr>
<tr>
<td></td>
<td>deposited between the seat and</td>
<td></td>
</tr>
<tr>
<td>plug.</td>
<td>plug.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Valve trim, particularly with soft seat, is worn.</td>
<td>Replace seat and plug (see section 7.3 or contact SAMSON’s After-sales Service department).</td>
</tr>
</tbody>
</table>
8.2 Emergency action

Upon supply air or control signal failure, the valve moves to its fail-safe position (see section 3.1).

Operators are responsible for emergency action to be taken in the plant.

In the event of a valve malfunction:

1. Close the shut-off valves upstream and downstream of the control valve to stop the process medium from flowing through the valve.

2. Check the valve for damage. If necessary, contact SAMSON’s After-sales Service department.

Putting the valve back into operation after a malfunction

» Slowly open the shut-off valves. Allow the process medium to flow into the valve slowly.

Contact SAMSON’s After-sales Service department for malfunctions not listed in the table.
9 Decommissioning and disassembly

**DANGER**
Risk of bursting in pressure equipment.
Control valves and pipelines are pressure equipment. Improper opening can lead to bursting of the valve.
- Before starting any work on the control valve, depressurize all plant sections concerned and the valve.
- Drain the process medium from all the plant sections concerned as well as the valve.
- Wear personal protective equipment.

**WARNING**
Risk of electric shock.
- Do not remove any covers to perform adjustment work on live parts.
- Before performing any work on the device and before opening the device, disconnect the power supply and protect it against unintentional reconnection.
- Only use power interruption devices that are protected against unintentional reconnection of the power supply.

**DANGER**
Risk of burn injuries due to hot or cold components and pipeline.
Valve components and the pipeline may become very hot or cold. Risk of burn injuries.
- Allow components and pipelines to cool down or heat up.
- Wear protective clothing and gloves.

9.1 Decommissioning

To decommission the control valve for service and repair work or disassembly, proceed as follows:

1. Close the shut-off valves upstream and downstream of the control valve to stop the process medium from flowing through the valve.
2. Completely drain the pipelines and valve.
3. Disconnect and lock the pneumatic air supply or power supply to depressurize or de-energize the actuator.
4. If necessary, allow the pipeline and valve components to cool down or heat up.

9.2 Removing the valve from the pipeline

1. Put the control valve out of operation (see section 9.1).
2. Unbolt the flange joint.

Wear protective clothing, gloves, and eye-wear.
3. Remove the valve from the pipeline (see section 4.2).

9.3 Removing the actuator from the valve

See associated actuator documentation.

9.4 Disposal

→ Observe local, national, and international refuse regulations.

→ Do not dispose of components, lubricants, and hazardous substances together with your other household waste.
Appendix

10 Appendix

10.1 After-sales service

Contact SAMSON’s After-sales Service department for support concerning servicing or repair work or when malfunctions or defects arise.

E-mail

You can reach the After-sales Service Department at aftersalesservice@samson.de.

Addresses of SAMSON AG and its subsidiaries

The addresses of SAMSON AG, its subsidiaries, representatives, and service facilities worldwide can be found on the SAMSON website, in all SAMSON product catalogs or on the back of these Mounting and Operating Instructions.

Required specifications

Please submit the following details:

- Order number and position number in the order
- Type, model number, nominal size, and valve version
- Pressure and temperature of the process medium
- Flow rate in m³/h
- Bench range of the actuator (e.g. 0.2 to 1 bar)
- Is a strainer installed?
- Installation drawing

10.2 Certificates

The declarations of conformity are listed on the following pages.
EU-KONFORMITÄTSERKLÄRUNG
EU DECLARATION OF CONFORMITY
Modul/Module A

SAMSON erklärt in alleiniger Verantwortung für folgende Produkte/explains in sole responsibility for the following products:

<table>
<thead>
<tr>
<th>Gerät/Devices</th>
<th>Bauart/Series</th>
<th>Typ/Type</th>
<th>Ausführung/Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durchgangsventil/Globe Valve</td>
<td>240</td>
<td>3241</td>
<td>DIN, Gehäuse GG Cast iron-Body DN65-125, Gehäuse GG G/Sph. gr. iron-Body DN50-80, Fluide Fluids G2, L1, L2 1)</td>
</tr>
<tr>
<td>Durchgangsventil/Globe Valve</td>
<td>240</td>
<td>3241</td>
<td>DIN, Geh. Steel etc., DN40-100, Fluide Fluids G2, L2 2)</td>
</tr>
<tr>
<td>Durchgangsventil/Globe Valve</td>
<td>240</td>
<td>3241</td>
<td>ANSI, Gehäuse GG Cast iron-Body, Cl250 1 ½”-2”, Cl125 2 ½”-4”, Fluide Fluids G2, L1, L2 1)</td>
</tr>
<tr>
<td>Dreiwegeventil/Three-way Valve</td>
<td>240</td>
<td>3044</td>
<td>DIN, Gehäuse GG Cast iron-Body DN55-125, Gehäuse GG G/Sph. gr. iron-Body DN50-80, Fluide Fluids G2, L1, L2 1)</td>
</tr>
<tr>
<td>Dreiwegeventil/Three-way Valve</td>
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<td>3044</td>
<td>DIN, Geh. Steel etc., DN40-100, Fluide Fluids G2, L2 2)</td>
</tr>
<tr>
<td>Schrägsitzventil/Bevel-Valve</td>
<td>—</td>
<td>3053</td>
<td>DIN, Rotgußgehäuse Bronze-Body, alle Fluide Fluids</td>
</tr>
<tr>
<td>Schrägsitzventil/Bevel-Valve</td>
<td>—</td>
<td>3053</td>
<td>DIN, Stahlgehäuse Steel-Body, Fluide Fluids G2, L1, L2 1)</td>
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<tr>
<td>Durchgangsventile/Globe Valve</td>
<td>V2001</td>
<td>3321</td>
<td>DIN, Gehäuse GG Cast iron-Body, DN 65-100, Fluide Fluids G2, L1, L2 1)</td>
</tr>
<tr>
<td>Durchgangsventile/Globe Valve</td>
<td>V2001</td>
<td>3321</td>
<td>ANSI, Gehäuse GG Cast iron-Body, 2 ½”-4”, Fluide Fluids G2, L1, L2 1)</td>
</tr>
<tr>
<td>Dreiwegeventile/Three-way Valve</td>
<td>V2001</td>
<td>3323</td>
<td>DIN, Gehäuse GG Cast iron-Body, DN 65-100, Fluide Fluids G2, L1, L2 1)</td>
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<tr>
<td>Dreiwegeventile/Three-way Valve</td>
<td>V2001</td>
<td>3323</td>
<td>ANSI, gehäuse GG Cast iron-Body, 2 ½”-4”, Fluide Fluids G2, L1, L2 1)</td>
</tr>
<tr>
<td>Dreiwegeventile/Three-way Valve</td>
<td>—</td>
<td>250</td>
<td>DIN, Gehäuse GG Cast iron-Body DN200 PN10, Fluide Fluids G2, L1, L2 1)</td>
</tr>
</tbody>
</table>

1) Gase nach Art. 4 Abs. 1 Pkt. c.i zweiter Gedankenstrich/Gases acc. to Article 4, Section 1 Subsection c.i second indent
2) Flüssigkeiten nach Art. 4 Abs. 1 Pkt. c.ii/liquids acc. to Article 4, Section 1 Subsection c.ii second indent

die Konformität mit nachfolgender Anforderung/we declare conformity with the demands of the:

Angewandtes Konformitätsbewertungsverfahren/ 
Applied Conformity Assessment Procedure
für Fluide nach Art. 4 Abs. 1/for fluids acc. to Article 4, Section 1

Modul A/ 
Module A

Bureau Veritas 0062

Das Qualitätssicherungssystem des Herstellers wird von folgender benannter Stelle überwacht/The Manufacturer’s Quality Assurance System is monitored by following Notified Body:

Bureau Veritas S. A. nr 0062 67/71, boulevard du Château, 92200 Neuilly-sur-Seine, France

Angewandte technische Spezifikation/Technical Standards used: DIN EN12516-2; DIN EN12516-3; ASME B16.34

Hersteller/Manufacturer: SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt

Frankfurt, 19.07.2016

Klaus Hörschken
Zentralabteilungsleiter / Head of Central Department
Entwicklung Ventile und Antriebe / R&D Valves and Actuators

Günther Scherer
Zentralabteilungsleiter / Head of Central Department
Qualitätsmanagement / Total Quality Management
SAMSON erklärt in alleiniger Verantwortung für folgende Produkte:

<table>
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<th>Typ/Type</th>
<th>Ausführung/Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durchgangsventil/Globe Valve</td>
<td>240</td>
<td>3241</td>
<td>DIN, Gehäuse GG ab DN150, Fluide Fluids G2, L1, L2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DIN/ANSI, alle Fluide Fluids</td>
</tr>
<tr>
<td>Dreiegeventil/Three-way Valve</td>
<td>240</td>
<td>3244</td>
<td>DIN/ANSI, alle Fluide Fluids</td>
</tr>
<tr>
<td>Tiefenmeierventil/Low-temp Valve</td>
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<td>3246</td>
<td>DIN/ANSI, alle Fluide Fluids</td>
</tr>
<tr>
<td>Durchgangsventil/Globe Valve</td>
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<td>3253</td>
<td>DIN/ANSI, alle Fluide Fluids</td>
</tr>
<tr>
<td>Dreiegeventil/Three-way Valve</td>
<td>250</td>
<td>3253</td>
<td>DIN/ANSI, alle Fluide Fluids</td>
</tr>
<tr>
<td>Spalt-Body-Verkettungs-Globe Valve</td>
<td>250</td>
<td>3256</td>
<td>DIN, alle Fluide Fluids</td>
</tr>
<tr>
<td>K-Eckventil/IG-Angle Valve</td>
<td>250</td>
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<td>DIN, alle Fluide Fluids</td>
</tr>
<tr>
<td>Dampfumformventil/Steam-converting Valve</td>
<td>280</td>
<td>3381</td>
<td>DIN, alle Fluide Fluids</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>DIN/ANSI, alle Fluide Fluids</td>
</tr>
<tr>
<td>Durchgangsventil/Globe Valve</td>
<td>240</td>
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<td>DIN, Gehäuse GG ab DN150, Fluide Fluids G2, L1, L2</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>DIN/ANSI, alle Fluide Fluids</td>
</tr>
</tbody>
</table>

Die Konformität mit nachfolgender Anforderung wird durch:
Bureau Veritas S. A. nr 0062 67/71, boulevard du Château, 92200 Neuilly-sur-Seine, France

Angewandtes Konformitätsbewertungsverfahren/ 
Applied Conformity Assessment Procedure
für Fluids nach Art. 4, Abs. 1/for fluids acc. to Article 4, Section 1

Das Qualitätssicherungssystem des Herstellers wird von folgender benannter Stelle überwacht/The Manufacturer’s Quality Assurance System is monitored by following Notified Body:

Klaus Hörschken
Zentralabteilungsleiter / Head of Central Department
Entwicklung Ventile und Antriebe / R&D Valves and Actuators

Frankfurt, 19.07.2016

Günther Scherer
Zentralabteilungsleiter / Head of Central Department
Qualitätsmanagement / Total Quality Management
### 10.3 Spare parts

1. Body
2. Bonnet (including guide bushing)
3. Seat
4. Plug (with plug stem)
5. Threaded bushing (packing nut)
6. Spring
7. Washer
8. Stud bolt
9. Body nut
10. Packing
11. V-ring packing
12. Body gasket
13. Spacer
14. Flow divider St 1
15. Tension ring
16. Flange bonnet (including guide bushing)
17. Flange
18. Central nut

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1) Only in version with flow divider
Type 3321 - DN 65 to 100/NPS 2½ to 4